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Choi, Ki-Doo
Kwon, Se Chang
Lee, Gwan Sun

<120> METHOD FOR THE MASS PRODUCTION OF IMMUNOGLOBULIN CONSTANT REGION

<130> 430156.404USPC

<140> US 10/535,312

<141> 2004-11-13

<150> PCT/KR2004/002943

<151> 2004-11-13

<150> KR10-2003-0080299

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<223> primer

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<223> primer

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<211> 990

<212> DNA

<213> Homo sapiens

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ggcacagcgg ccctgggctg cctgggtcaag gactacttcc ccgaaccggg gacgggtgtcg 120

tggaactcag gcgccctgac cagcggcgtg cacaccttcc cggctgtcct acagtctca 180

ggactctact cctcagcag cgtgggtgacc gtgccctcca gcagcttggg caccagacc 240

tacatctgca acgtgaatca caagcccagc aacaccaagg tggacaagaa agttgagccc 300

aaatcttgtg acaaaactca cacatgcccc ccgtgcccag cacctgaact cctgggggga 360

ccgtcagtct tcctcttccc cccaaaaccc aaggacaccc tcatgatctc ccggaccct 420

gaggtcacat gcgtgggtgt ggacgtgagc cacgaagacc ctgaggtcaa gttcaactgg 480

tacgtggacg gcgtggaggt gcataatgcc aagacaaagc cgcgggagga gcagtacaac 540

agcacgtacc gtgtggtcag cgtcctcacc gtcctgcacc aggactgggt gaatggcaag 600

gagtacaagt gcaaggctct caacaaagcc ctcccagccc ccatcgagaa aaccatctcc 660

aaagccaaag ggagccccg agagccacag gtgtacaccc tgccccatc ccgggatgag 720

ctgaccaaga accaggtcag cctgacctgc ctggtcaaag gcttctatcc cagcgacatc 780

gccgtggagt gggagagcaa tgggcagccg gagaacaact acaagaccac gcctcccgtg 840
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 cagcagggga acgtcttctc atgctccgtg atgcatgagg ctctgcacaa ccactacacg 960
 cagaagagcc tctccctgtc tccgggtaaa 990

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 <212> DNA
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<400> 6
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 ggaactgcct ctgttgtgtg cctgctgaat aactttctatc ccagagaggc caaagtacag 120
 tggaagggtg ataacgccct ccaatcgggt aactcccagg agagtgtcac agagcaggac 180
 agcaaggaca gcacctacag cctcagcagc accctgacgc tgagcaaagc agactacgag 240
 aaacacaaaag tctacgcctg cgaagtcacc catcagggcc tgagctcgcc cgtcacaaaag 300
 agcttcaaca ggggagagtg ttag 324

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<220>
 <223> primer

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 cggcctccac caagggccca tcggtcttcc 30

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<220>
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<400> 8
 cgccgtgcc agcacctgaa ctctggggg gac 33

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<220>
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<400> 9
 cgtcatgccc agcacctgaa ctctggggg gac 33

<210> 10
 <211> 35
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> primer

<400> 10
 cgtcatgccc agcacctgag ttctggggg gacca 35

<210> 11
 <211> 26
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> primer

<400> 11
 cggcacctga actctgggg ggaccg 26

<210> 12
 <211> 69
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 <213> Escherichia coli

<400> 12
 atgaaaaaga caatcgatt tttcttgca tctatgttcg tttttctat tgctacaaat 60
 gccagggcg 69

<210> 13
 <211> 45
 <212> DNA
 <213> Artificial Sequence

<220>

<223> primer

<400> 13

tctattgcta caaatgcca gcccttccca accattccct tatcc

45

<210> 14

<211> 45

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<400> 14

agataacgat gtttacgggt ccggaagggt tggttaaggga atagg

45

<210> 15

<211> 984

<212> DNA

<213> Homo sapiens

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tggaactcag gcgccctgac cagcggcgtg cacaccttcc cggctgtcct acagtcctca	180
ggactctact ccctcagcag cgtggtgacc gtgccctcca gcagcttggg cacgaagacc	240
tacacctgca acgtagatca caagcccagc aacaccaagg tggacaagag agttgagtcc	300
aaatatggtc ccccatgccc atcatgcca gcacctgagt tcttgggggg accatcagtc	360
ttcctgttcc ccccaaaacc caaggacact ctcatgatct cccggacccc tgaggtcacg	420
tgcggtggtg tggaactgag ccaggaagac cccgaggtcc agttcaactg gtacgtggat	480
ggcgtggagg tgcataatgc caagacaaag ccgcgggagg agcagttcaa cagcacgtac	540
cgtgtggtca gcgtcctcac cgtcctgcac caggactggc tgaacggcaa ggagtacaag	600
tgcaaggctc ccaacaaagg cctcccgtcc tccatcgaga aaaccatctc caaagccaaa	660
gggcagcccc gagagccaca ggtgtacacc ctgcccccat ccaggagga gatgaccaag	720
aaccaggtea gcctgacctg cctggtcaaa ggcttctacc ccagcgacat cgccgtggag	780

tgggagagca atgggcagcc ggagaacaac tacaagacca cgctcccgt gctggactcc 840
gacggctcct tcttcctcta cagcaggcta accgtggaca agagcagggtg gcaggagggg 900
aatgtcttct catgctccgt gatgcatgag gctctgcaca accactacac acagaagagc 960
ctctccctgt ctctgggtaa atga 984

<210> 16
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<212> DNA
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<220>
<223> primer

<400> 16
cgtcatgcc agcacctgag ttcttggggg gacca 35

<210> 17
<211> 42
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 17
gggggatcct catttaccca gagacaggga gaggtctctt tg 42

<210> 18
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<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 18
cggcacctga gttcttgggg ggaccatca 29

<210> 19
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<223> primer

<400> 19
cggcttccac caagggccca tccgtcttcc

30

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<220>
<223> primer

<400> 20
cgcgaaactgt ggctgcacca t

21

<210> 21
<211> 220
<212> PRT
<213> Homo sapiens

<400> 21
Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe
1 5 10 15
Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val
20 25 30
Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe
35 40 45
Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro
50 55 60
Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr
65 70 75 80
Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val
85 90 95
Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala
100 105 110
Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg
115 120 125
Asp Glu Leu Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly
130 135 140
Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro

145 150 155 160
 Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser
 165 170 175
 Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln
 180 185 190
 Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His
 195 200 205
 Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
 210 215 220

 <210> 22
 <211> 220
 <212> PRT
 <213> Homo sapiens

 <400> 22
 Ser Cys Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe
 1 5 10 15
 Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val
 20 25 30
 Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe
 35 40 45
 Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro
 50 55 60
 Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr
 65 70 75 80
 Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val
 85 90 95
 Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala
 100 105 110
 Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg
 115 120 125
 Asp Glu Leu Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly
 130 135 140
 Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro
 145 150 155 160
 Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser
 165 170 175

Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln
 180 185 190

Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His
 195 200 205

Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
 210 215 220

<210> 23

<211> 220

<212> PRT

<213> Homo sapiens

<400> 23

Ser Cys Pro Ala Pro Glu Phe Leu Gly Gly Pro Ser Val Phe Leu Phe
 1 5 10 15

Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val
 20 25 30

Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe
 35 40 45

Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro
 50 55 60

Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr
 65 70 75 80

Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val
 85 90 95

Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala
 100 105 110

Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg
 115 120 125

Asp Glu Leu Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly
 130 135 140

Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro
 145 150 155 160

Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser
 165 170 175

Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln
 180 185 190

Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His
 195 200 205

Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
 210 215 220

<210> 24
 <211> 327
 <212> PRT
 <213> Homo sapiens

<400> 24
 Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Cys Ser Arg
 1 5 10 15
 Ser Thr Ser Glu Ser Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr
 20 25 30
 Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser
 35 40 45
 Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser
 50 55 60
 Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Lys Thr
 65 70 75 80
 Tyr Thr Cys Asn Val Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys
 85 90 95
 Arg Val Glu Ser Lys Tyr Gly Pro Pro Cys Pro Ser Cys Pro Ala Pro
 100 105 110
 Glu Phe Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys
 115 120 125
 Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val
 130 135 140
 Asp Val Ser Gln Glu Asp Pro Glu Val Gln Phe Asn Trp Tyr Val Asp
 145 150 155 160
 Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Phe
 165 170 175
 Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp
 180 185 190
 Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Gly Leu
 195 200 205
 Pro Ser Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg
 210 215 220
 Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Gln Glu Glu Met Thr Lys

225 230 235 240
 Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp
 245 250 255
 Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys
 260 265 270
 Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser
 275 280 285
 Arg Leu Thr Val Asp Lys Ser Arg Trp Gln Glu Gly Asn Val Phe Ser
 290 295 300
 Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser
 305 310 315 320
 Leu Ser Leu Ser Leu Gly Lys
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<210> 25
 <211> 330
 <212> PRT
 <213> Homo sapiens

<400> 25
 Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys
 1 5 10 15
 Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr
 20 25 30
 Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser
 35 40 45
 Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser
 50 55 60
 Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr
 65 70 75 80
 Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys
 85 90 95
 Lys Val Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys
 100 105 110
 Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro
 115 120 125
 Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys
 130 135 140

Val Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp
 145 150 155 160
 Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu
 165 170 175
 Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu
 180 185 190
 His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn
 195 200 205
 Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly
 210 215 220
 Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Asp Glu
 225 230 235 240
 Leu Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr
 245 250 255
 Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn
 260 265 270
 Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe
 275 280 285
 Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn
 290 295 300
 Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr
 305 310 315 320
 Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
 325 330

<210> 26
 <211> 15
 <212> PRT
 <213> Homo sapiens

<400> 26
 Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro
 1 5 10 15

<210> 27
 <211> 217
 <212> PRT
 <213> Homo sapiens

<400> 27
 Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys

1	5	10	15
Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val	20	25	30
Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr	35	40	45
Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu	50	55	60
Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His	65	70	75
Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys	85	90	95
Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln	100	105	110
Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Asp Glu Leu	115	120	125
Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro	130	135	140
Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn	145	150	155
Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu	165	170	175
Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val	180	185	190
Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln	195	200	205
Lys Ser Leu Ser Leu Ser Pro Gly Lys	210	215	

<210> 28
 <211> 12
 <212> PRT
 <213> Homo sapiens

<400> 28
 Glu Ser Lys Tyr Gly Pro Pro Cys Pro Ser Cys Pro
 1 5 10

<210> 29
 <211> 220

<212> PRT

<213> Homo sapiens

<400> 29

Ser Cys Pro Ala Pro Glu Phe Leu Gly Gly Pro Ser Val Phe Leu Phe
 1 5 10 15

Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val
 20 25 30

Thr Cys Val Val Val Asp Val Ser Gln Glu Asp Pro Glu Val Gln Phe
 35 40 45

Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro
 50 55 60

Arg Glu Glu Gln Phe Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr
 65 70 75 80

Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val
 85 90 95

Ser Asn Lys Gly Leu Pro Ser Ser Ile Glu Lys Thr Ile Ser Lys Ala
 100 105 110

Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Gln
 115 120 125

Glu Glu Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly
 130 135 140

Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro
 145 150 155 160

Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser
 165 170 175

Phe Phe Leu Tyr Ser Arg Leu Thr Val Asp Lys Ser Arg Trp Gln Glu
 180 185 190

Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His
 195 200 205

Tyr Thr Gln Lys Ser Leu Ser Leu Ser Leu Gly Lys
 210 215 220

<210> 30

<211> 217

<212> PRT

<213> Homo sapiens

<400> 30

Ala Pro Glu Phe Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys

1	5	10	15
Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val	20	25	30
Val Val Asp Val Ser Gln Glu Asp Pro Glu Val Gln Phe Asn Trp Tyr	35	40	45
Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu	50	55	60
Gln Phe Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His	65	70	75
Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys	85	90	95
Gly Leu Pro Ser Ser Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln	100	105	110
Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Gln Glu Glu Met	115	120	125
Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro	130	135	140
Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn	145	150	155
Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu	165	170	175
Tyr Ser Arg Leu Thr Val Asp Lys Ser Arg Trp Gln Glu Gly Asn Val	180	185	190
Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln	195	200	205
Lys Ser Leu Ser Leu Ser Leu Gly Lys	210	215	

<210> 31
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 <213> primer

<400> 31
 cgccgtgcc agcacctccg gtggcgga

<210> 32
 <211> 33
 <212> DNA

<213> primer

<400> 32

gggggatacct catttaccgc gagacaggga gag

33

<210> 33

<211> 12

<212> PRT

<213> Homo sapiens

<400> 33

Glu Arg Lys Cys Cys Val Glu Cys Pro Pro Cys Pro
1 5 10

<210> 34

<211> 107

<212> PRT

<213> Homo sapiens

<400> 34

Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu
1 5 10 15

Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe
20 25 30

Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln
35 40 45

Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser
50 55 60

Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu
65 70 75 80

Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser
85 90 95

Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
100 105

<210> 35

<211> 219

<212> PRT

<213> Homo sapiens

<400> 35

Pro Cys Pro Ala Pro Pro Val Ala Gly Pro Ser Val Phe Leu Phe Pro
1 5 10 15

Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr

20					25					30					
Cys	Val	Val	Val	Asp	Val	Ser	His	Glu	Asp	Pro	Glu	Val	Gln	Phe	Asn
		35					40					45			
Trp	Tyr	Val	Asp	Gly	Val	Glu	Val	His	Asn	Ala	Lys	Thr	Lys	Pro	Arg
	50					55					60				
Glu	Glu	Gln	Phe	Asn	Ser	Thr	Phe	Arg	Val	Val	Ser	Val	Leu	Thr	Val
	65					70					75				80
Val	His	Gln	Asp	Trp	Leu	Asn	Gly	Lys	Glu	Tyr	Lys	Cys	Lys	Val	Ser
				85					90					95	
Asn	Lys	Gly	Leu	Pro	Ala	Pro	Ile	Glu	Lys	Thr	Ile	Ser	Lys	Thr	Lys
			100					105					110		
Gly	Gln	Pro	Arg	Glu	Pro	Gln	Val	Tyr	Thr	Leu	Pro	Pro	Ser	Arg	Glu
		115					120					125			
Glu	Met	Thr	Lys	Asn	Gln	Val	Ser	Leu	Thr	Cys	Leu	Val	Lys	Gly	Phe
	130					135					140				
Tyr	Pro	Ser	Asp	Ile	Ala	Val	Glu	Trp	Glu	Ser	Asn	Gly	Gln	Pro	Glu
	145					150					155				160
Asn	Asn	Tyr	Lys	Thr	Thr	Pro	Pro	Met	Leu	Asp	Ser	Asp	Gly	Ser	Phe
				165					170					175	
Phe	Leu	Tyr	Ser	Lys	Leu	Thr	Val	Asp	Lys	Ser	Arg	Trp	Gln	Gln	Gly
			180					185					190		
Asn	Val	Phe	Ser	Cys	Ser	Val	Met	His	Glu	Ala	Leu	His	Asn	His	Tyr
		195					200					205			
Thr	Gln	Lys	Ser	Leu	Ser	Leu	Ser	Pro	Gly	Lys					
	210					215									

<210> 36
 <211> 23
 <212> PRT
 <213> Escherichia coli

<400> 36
 Met Lys Lys Asn Ile Ala Phe Leu Leu Ala Ser Met Phe Val Phe Ser
 1 5 10 15

Ile Ala Thr Asn Ala Tyr Ala
 20

<210> 37
 <211> 23

<212> PRT
 <213> Escherichia coli

<400> 37
 Met Lys Lys Thr Ile Ala Phe Leu Leu Ala Ser Met Phe Val Phe Ser
 1 5 10 15

Ile Ala Thr Asn Ala Gln Ala
 20

<210> 38
 <211> 23
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 <213> Escherichia coli

<400> 38
 Met Lys Lys Thr Ile Ala Phe Leu Leu Ala Ser Met Phe Val Phe Ser
 1 5 10 15

Ile Ala Thr Val Ala Gln Ala
 20

<210> 39
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 <212> PRT
 <213> Escherichia coli

<400> 39
 Met Lys Lys Lys Thr Ala Phe Leu Leu Ala Ser Met Phe Val Phe Ser
 1 5 10 15

Ile Ala Thr Asn Ala Gln Ala
 20

<210> 40
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<400> 40
 Met Lys Lys Ser Ile Ala Phe Leu Leu Ala Ser Met Phe Val Phe Ser
 1 5 10 15

Ile Ala Thr Asn Ala Gln Ala
 20

<210> 41
 <211> 23
 <212> PRT
 <213> Escherichia coli

<400> 41
 Met Lys Lys Ser Ile Ala Phe Leu Leu Ala Ser Met Phe Val Phe Ser
 1 5 10 15

Ile Ala Thr Val Ala Gln Ala
 20

<210> 42
 <211> 23
 <212> PRT
 <213> Escherichia coli

<400> 42
 Met Lys Lys Thr Ile Ala Phe Leu Leu Ala Ser Gly Phe Val Phe Ser
 1 5 10 15

Ile Ala Thr Val Ala Gln Ala
 20

<210> 43
 <211> 23
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